PUMA 400

Powerful, Heavy Duty Turning Center

PUMA 400

The PUMA 400 series turning centers are without a doubt the most powerful machines in their class. High metal removal rates, along with rapid positioning and fast bi-directional turret indexing, guarantee unmatched cycle times when real cutting is essential.

Massive yet responsive turning centers without compromise. The most powerful machines in their class.

Main Spindle

Main Spindle

The headstock casting is made of Meehanite and ribbed on the outside to increase the surface area for better heat dissipation. The headstock and main spindle are manufactured in a temperature controlled environment then assembled and tested in our clean room. Double row of cylindrical roller bearings and duplex angular contact ball bearings, P4 class of the spindle ensure the highest rigidity and efficiency to transmit motor power to the end.
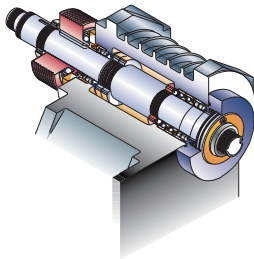
Max. spindle speed

1500 r/min (PUMA 400 C /MC/ LC / LMC / XLC / XLMC)

Motor (30 min)

37 kW (49.6 Hp) (PUMA 400 C /MC/ LC / LMC / XLC / XLMC)

Main Spindle Drive

The high-torque spindle motor provides power for heavy stock removal, greatly reducing the number of roughing passes required. For 3axis milling models, the motor is a spindle servo type controlling both the spindle in 2axis mode and full contouring C-axis in the 3axis mode. Switching between the two modes is nearly instantaneous.

Isolated Gear Box (DI Gear Box)

Power is delivered to the spindle through a two speed gearbox allowing high spindle speeds as well as powerful low end torque. The gearbox and spindle motor are isolated from the spindle, eliminating transfer of heat and vibration.

PUMA 400 A/B/C/LA/LB/LC/XLA/ XLB/XLC std.

BF Gear Box

Heavy cutting enabled with 2-step Baruffaldi Gearbox (standard), which is equipped with double bearings at the pulley shaft to enhance durability. The high precision BF Gearbox reduces noise at high speed. The gearbox and motor are separated from the spindle to isolate vibration, further enhancing working accuracy.

PUMA 400MC/LMC/XLMC std.
PUMA 400A/LA/XLA/B/LB/XLB/C/LC/XLC/MA/LMA/XLMA/MB/LMB/XLMB opt.

Turret

Fast Turret Indexing

The large 12 and 10 station heavy duty turret features a large diameter Curvic coupling and hydraulic clamp force. The heavy duty design provides unsurpassed rigidity for heavy stock removal, fine surface finishes, long boring bar overhang ratios, and extended tool life. Turret rotation, deceleration and clamp are all controlled by a reliable high torque-hydraulic index motor. Unclamp and rotation are virtually simultaneous. Turret indexing is non-stop bidirectional with a 0.25 second next station index time. Turning tools are securely attached to the turret by wedge clamps.

Index time (1-station swivel)

0.25 S

No. of tool station

12 stations*   * In case of PUMA 400 B/C : 10 stations

Preci-Flex Ready Rotary Tools

Preci-Flex ready rotary tool holders are available on the milling versions. Preci-Flex is a tooling system utilizes the existing ER collet taper in the rotary holders. The spindle face is precision ground relative to the taper and there are four drilled and tapped holders in this face. The Preci-Flex adapters locate on both the taper and the spindle face for maximum rigidity.
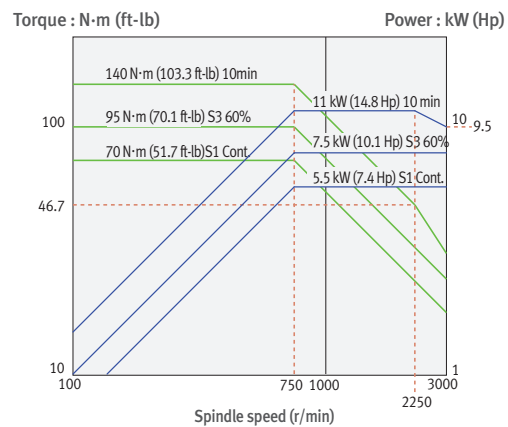

Preci-flex adapter application

Collet application

Rotary tool power-torque diagram

PUMA 400M / 400LM / 400XLM [7.5 kW(10.1 Hp) / 30min]

Torque : N·m (ft-lb)

Power : kW (Hp)

140 N·m (103.3 ft-lb) 10min
95 N·m (70.1 ft-lb) S3 60%
70 N·m (51.7 ft-lb)S1 Cont

11 kW (14.8 Hp) 10 min
7.5 kW (10.1 Hp) S3 60%
5.5 kW (7.4 Hp) S1 Cont.

100
46.7
10

10 -9.5

1

100   750 1000   3000
2250

Spindle speed (r/min)

BMT Milling Turret

12 tool stations turret (BMT55P) make it possible to complete complicated parts requiring many tools in just one set-up. Reliable servo driven turrets reduce the total cycle time required to machine parts.

Straight milling head

Angular milling head
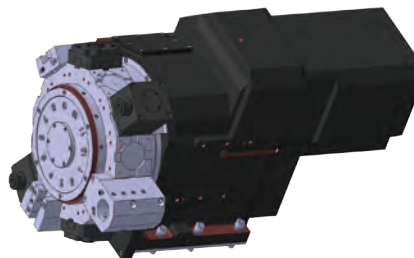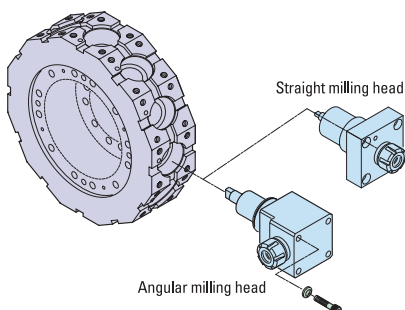
Bed and Way Construction

Doosan Infracore precision machine tools are internationally known for their durability, rigidity and high accuracy. Only well proven and time tested manufacturing techniques can produce machines of this quality.

The PUMA 400 series is a true 45 degree slant bed design. The bed is a one piece casting with both the saddle and tailstock guideways in the same plane to eliminate thermal distortion. The heavily ribbed torque tube design prevents twisting and deformation. Fine grain Meehanite processed cast iron is used because of its excellent dampening characteristics. This ensures high rigidity with no deformation during heavy cutting. The slant angle allows for easy loading, changing and inspection of tools. All guideways are wide wrap-around rectangular type for un-surpassed long-term rigidity and accuracy. The guideways are widely spaced to ensure stability and fully protected. Each guide-way is induction hardened and precision ground. A fluroplastic resin, Rulon® 142, is bonded to the mating way surfaces, for its wear and friction characteristics and then hand scraped for a perfect fit and center height. Optional long bed enables extra-long shaft machining.

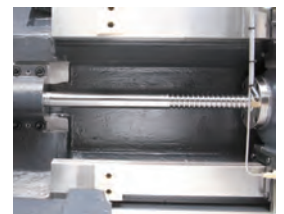## Rapid Traverse

X-axis
16 m/min (629.9 ipm)

Z-axis
20 m/min (787.4 ipm) (PUMA 400A/B/C/MA/MB/MC)
18 m/min (708.7 ipm) (PUMA 400LA/LB/LC/LMA/LMB/LMC)
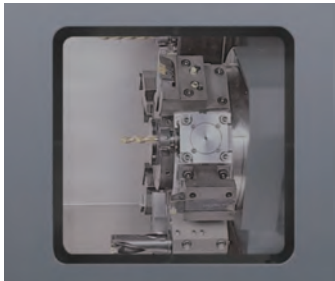**10** m/min (393.7 ipm) (PUMA 400XLA/XLB/XLC/XLMA/XLMB/XLMC)
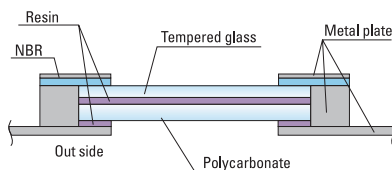

Scraping of Slideway

Outstanding rigidity for high feedrates

Ergonomic Design

Double-Paneled Safety Window

The operator safety can be enhanced through the front door with its shock absorbing laminated glass and double panel construction. The windows without grating also provide a clear view of the machine inside.

Operator's Panel

The operator control panel is mounted on an adjustable pendant for easy viewing and accessibility during set-up and operation. The layout and location of the panel is ergonomically designed to be efficient and convenient for the operator Comprehensive alarm diagnostics are provided for the machine, control and programming errors.

Axis Drive Construction and Tail Stock

Double Pretensioned Ball Screw
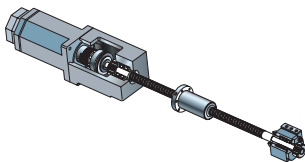
Both the X and Z axes features a double pretensioned ball screw, supported on each end by precision class P4 angular contact thrust bearings. Both axes are driven by large diameter, high precision ball screws.

Programmable Tailstock

The programmable tailstock body is mounted on the same guideway surface as the headstock. The heavy casting, large 120mm (4.7 inch) diameter quill, and precision Morse Taper #6 live center provide outstanding rigidity. The 120mm (4.7 inch) quill stroke is activated by either the program or foot switch. Auto lubrication is provided to the quill and guideways.

Axis Drives
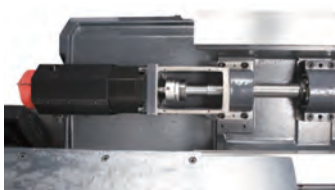
Each axis is powered by a maintenance free digital AC servo motor. These high torque drive motors are connected to the ball screws without intermediate gears for quiet and responsive slide movement with virtually no backlash.

Equipment

Collection of Waste Lubrication Oil

Less waste lubrication oil extends the life time of the coolant water and cut down the grime and offensive smell of the machine inside.

No Coolant Leakage

Rigorously designed, manufactured and tested machine covers do not permit coolant leakage in any condition. The factory always keeps our environment clean.

Hydraulic Power Unit

The temperature of the hydraulic oil is regulated by a cooling system.

Oil Skimmer opt.

The coolant is kept clean and its life is extended with bed casting channels from the Z axis to a separate reservoir. A belt oil skimmer picks up and removes waste oil from the coolant tank that is easily drained.

Metered Way Lubrication

Automatic lubrication is provided to all guideways, ball screws and the tailstock quill. A maintenance free piston distributor delivers a precise quantity of oil to each lubrication point. The 1.8 L (0.5 gallon) reservoir lasts up to 80 hours. A low level alarm prevents the machine from restarting without lubricant.

Tool Pre-Setter opt.

The automatic tool setter reduces set-up time by minimizing the need for skim cuts, measurements and entering tool offsets.
The tool setting arm is moved by an electric motor and can be controlled through the program.

Electric Torque Limiters

Each axis ball screw is protected by electric torque limiters to minimize damage in the event of a crash. Upon impact, the limiter immediately stops the machine.

Coolant System

The high pressure flushes chips out of drilled holes, reduces the need for peck drill cycles, meets the requirements of most insert drill manufactures and significantly increases tool life.
The separate, large 280[370] L (74[97.8] gallon) capacity coolant tank and chip pan are separate from the machine bed to prevent heat trans-fer and easy cleaning.
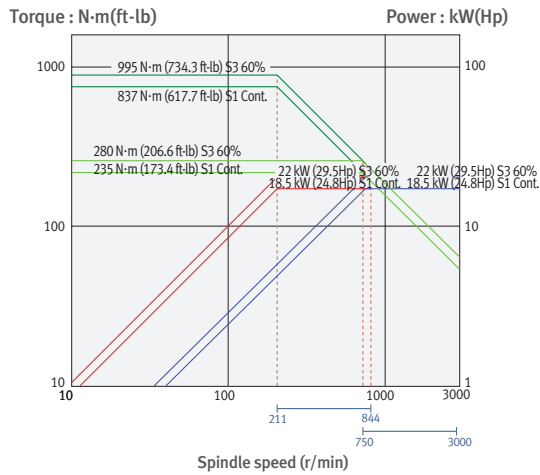[ ] : Long bed
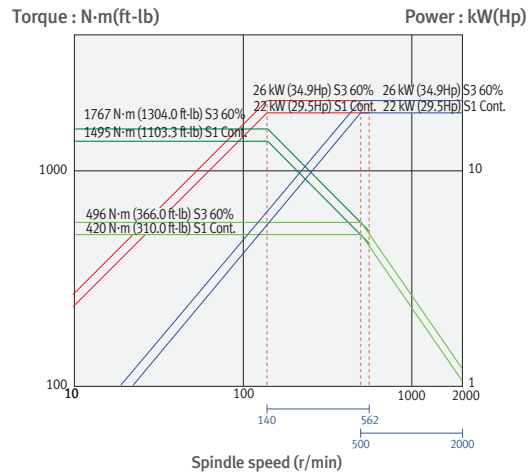
Long Boring Bar Holder opt.
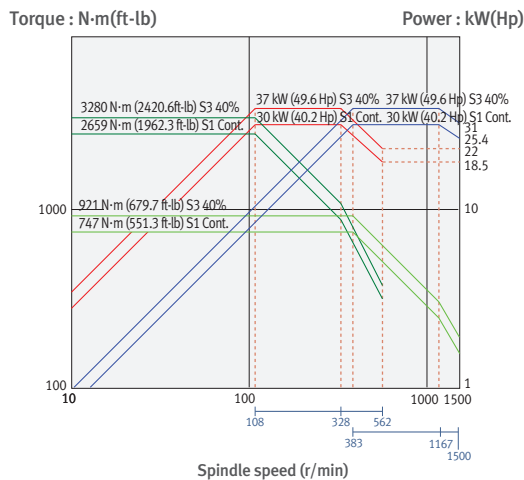
Main spindle power-torque diagram

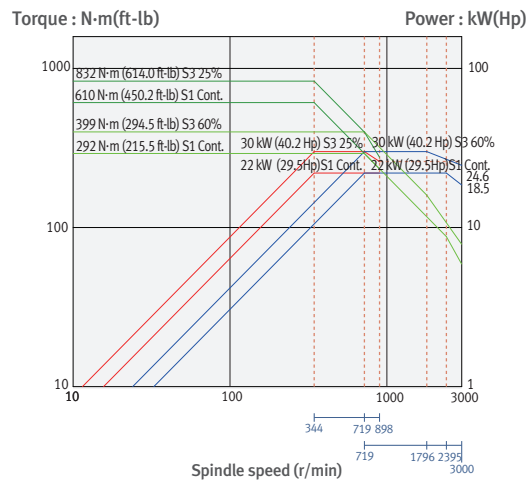## PUMA 400A/LA/XLA - 22kW (29.5 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

995 N·m (734.3 ft-lb) S3 60%
837 N·m (617.7 ft-lb) S1 Cont.
280 N·m (206.6 ft-lb) S3 60%
235 N·m (173.4 ft-lb) S1 Cont.
22 kW (29.5Hp) S3 60%   22 kW (29.5Hp) S3 60%
18.5 kW (24.8Hp) S1 Cont. 18.5 kW (24.8Hp) S1 Cont.

1000 · 100 · 10
100 · 1000 · 3000

211 · 844 · 750 · 3000

Spindle speed (r/min)

PUMA 400B/LB/XLB - 26 kW (34.9 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

1767 N·m (1304.0 ft-lb) S3 60%
1495 N·m (1103.3 ft-lb) S1 Cont.
26 kW (34.9Hp) S3 60%   26 kW (34.9Hp) S3 60%
22 kW (29.5Hp) S1 Cont. 22 kW (29.5Hp) S1 Cont.
496 N·m (366.0 ft-lb) S3 60%
420 N·m (310.0 ft-lb) S1 Cont.

1000 · 100 · 10 · 1
10 · 100 · 1000 · 2000

140 · 562 · 500 · 2000

Spindle speed (r/min)

PUMA 400C/LC/XLC - 37 kW (49.6 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

3280 N·m (2420.6ft-lb) S3 40%
2659 N·m (1962.3 ft-lb) S1 Cont.
37 kW (49.6 Hp) S3 40%   37 kW (49.6 Hp) S3 40%
30 kW (40.2 Hp) S1 Cont. 30 kW (40.2 Hp) S1 Cont.
31
25.4
22
18.5
921 N·m (679.7 ft-lb) S3 40%
747 N·m (551.3 ft-lb) S1 Cont.

100 · 1000 · 100 · 10 · 1
10 · 100 · 1000 · 1500

108 · 328 · 562 · 383 · 1167 · 1500

Spindle speed (r/min)

PUMA 400MA/LMA/XLMA - 30 kW (40.2 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

832 N·m (614.0 ft-lb) S3 25%
610 N·m (450.2 ft-lb) S1 Cont.
399 N·m (294.5 ft-lb) S3 60%
292 N·m (215.5 ft-lb) S1 Cont.
30 kW (40.2 Hp) S3 25%   30 kW (40.2 Hp) S3 60%
22 kW (29.5Hp) S1 Cont. 22 kW (29.5Hp) S1 Cont.
24.6
18.5

1000 · 100 · 100 · 10 · 1
10 · 100 · 1000 · 3000

344 · 719 898 · 719 · 1796 2395 · 3000

Spindle speed (r/min)

PUMA 400MB/LMB/XLMB - 30 kW (40.2 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

30 kW (40.2 Hp) S3 25%   30 kW (40.2 Hp) S3 60%
22 kW (29.5Hp) S1 Cont.
18.5 kW (24.8Hp) S1 Cont.
18.5
17
13
1611 N·m (1188.9 ft-lb) S3 25%
993 N·m (732.8 ft-lb) S1 Cont.
859 N·m (633.9 ft-lb) S3 60%
630 N·m (464.9 ft-lb) S1 Cont.

1000 · 100 · 10 · 1
10 · 100 · 1000 · 2000

178 · 333 444 · 667 · 333 · 1333 2000

Spindle speed (r/min)
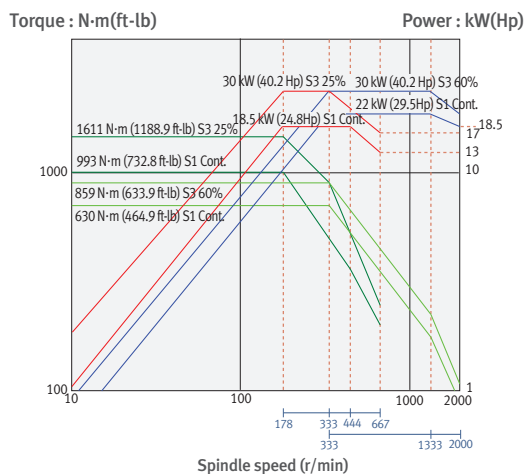
PUMA 400MC/LMC/XLMC - 37kW (49.6 Hp) 30min

Torque : N·m(ft-lb) Power : kW(Hp)

37 kW (49.6 Hp) S3 40%   37 kW (49.6 Hp) S3 40%
30 kW (40.2 Hp) S1 Cont. 30 kW (40.2 Hp) S1 Cont.
2432 N·m (1794.8 ft-lb) S3 40%
1972 N·m (1455.3 ft-lb) S1 Cont.
22
18.5
608 N·m (448.7 ft-lb) S3 40%
493 N·m (363.8 ft-lb) S1 Cont.

1000 · 100 · 10 · 1
10 · 100 · 1000 · 1500

145 · 442 · 758 · 581 · 1500

Spindle speed (r/min)
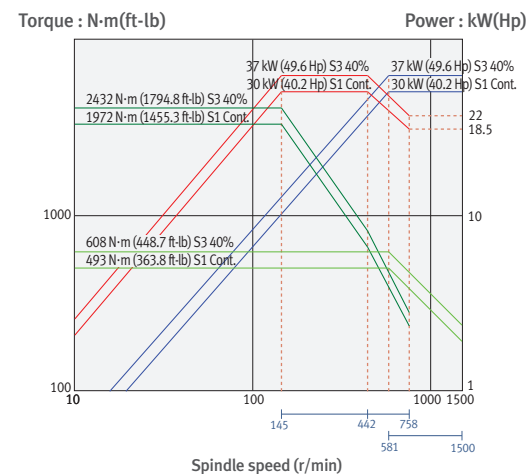
Tooling System

PUMA 400 A / B / C / LA / LB / LC / XLA / XLB / XLC

Unit : mm (inch)

Standard

- **PUMA 400 A/LA/XLA**
- **PUMA 400 B/LB/XLB**
- **PUMA 400 C/LC/XLC**

O.D Tool
□ 32

Face Tool Holder (1) (1) (1)

Extended O.D Tool Holder (1) (1) (1)

O.D Tool Clamper (3) (4) (3)

10st Turret
PUMA 400 B/C/LB/LC/XLB/XLC

12st Turret
PUMA 400 A/LA/XLA

U-Drill Cap (1) (1) (1)

I.D Tool Holder (H60) (5) (6) (5)

U-Drill Sleeves
Ø25(1.0) Ø32(1.3)
Ø40(1.6) Ø50(2.0)
Ø60 (2.4)

U-Drill

Boring Bar Sleeves
Ø16(0.6)-H60 Ø32(1.3)-H60
Ø20(0.8)-H60 Ø40(1.6)-H60
Ø25(1.0)-H60 Ø50(2.0)-H60
Ø60 (2.4)

Boring Bar

Drill Sockets
MT#2-H60 MT#4-H60
MT#3-H60 MT#5-H60
opt.

Drill

PUMA 400 M / LM/ XLM

Standard

Milling Collets
ER 40
Ø4(0.2) ~ Ø20 (0.8),
Ø22(0.9), Ø25(1.0)
(19 Pieces)

Weldon Adapter
I.D 25mm(1.0) (1)

Milling Arbor Adapter
O.D 22mm(0.9) (1)

Collet Adapter
ER 40 (1)

Plug (12)

Angular Milling Unit (2)

Straight Milling Unit (2)

12st Turret
(BMT 75P)

U-Drill Cap (1)

I.D Tool Holder (H60) (3)

Face Tool Holder (1)

O.D Tool Holder (4)

U-Drill Sleeves

Boring Bar Sleeves
Ø16(0.6)-H60 Ø32(1.3)-H60
Ø20(0.8)-H60 Ø40(1.6)-H60
Ø25(1.0)-H60 Ø50(2.0)-H60
Ø60 (2.4)

Drill Sockets
MT#2-H60 MT#4-H60
MT#3-H60 MT#5-H60
opt.

Drill

Ø60 Boring Bar

U-Drill

Boring Bar

O.D Tool
□ 25

Working Range

PUMA 400 / 400L / 400XL

Unit : mm (inch)

OD Tool Holder

ID Tool holder

PUMA 400
PUMA 400L
PUMA 400XL

PUMA 400M / 400LM / 400XLM

OD/ID Tool Holder

Straight//Angular milling unit

PUMA 400M
PUMA 400LM
PUMA 400XLM

* : PUMA 400C

PUMA 400 A / LA / XLA

Ø760(29.9)(Ø740(29.1) : PUMA 400XLA)
(MAX. TOOLS SWING)

270(10.6) 40(1.6) 275(10.8) 87(3.4)
310(12.2) 362(14.3) (X-AXIS TRAVEL)
672(26.5)
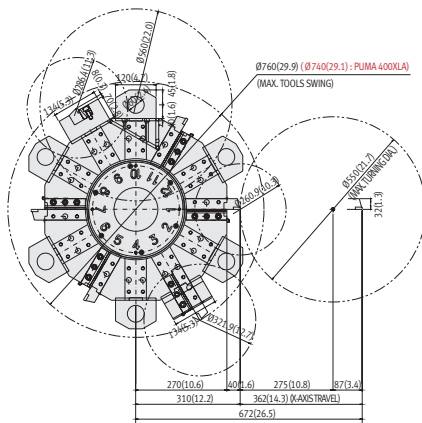
PUMA 400 B / C / LB / LC / XLB / XLC

Unit : mm (inch)

Ø800(31.5)(Ø780(30.7) : PUMA 400XLB/XLC)
(MAX. TOOL SWING)

134(5.3)
270(10.6) 40(1.6) 275(10.8) 87(3.4)
310(12.2) 362(14.3) (X-AXIS TRAVEL)
672(26.5)

PUMA 400 M /LM / XLM

112(4.4)
112(4.4)
Ø805(31.7)(Ø785(30.9) : PUMA 400XLM)
(MAX. TOOLS SWING)

Ø242.8(9.6)
Ø26(1.0)
Ø63(2.5)

215(8.5) 50(2.0) 40(1.6) 280(11.0) 77(3.0)
305(12.0) 357(14.1) (X-AXIS TRAVEL)
662(26.1)
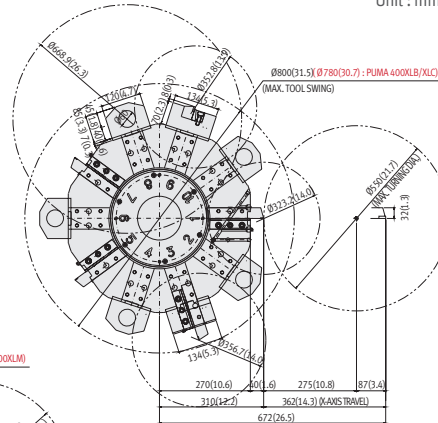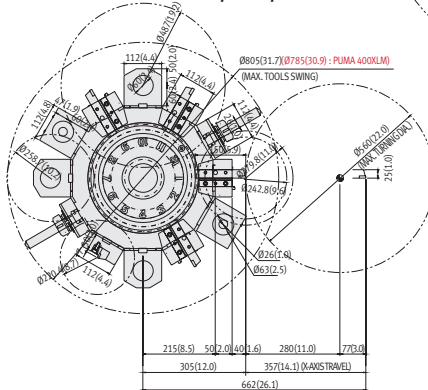
* 2-axes, outer diameter tool enables working up to
Ø485 mm (19.1 inch) of cross-section.

External Dimensions

PUMA 400 / 400M

Top View

4254(167.5) 330(13.0)
360(14.2) 3892(153.2)
200(7.9) 1200(47.2) 2692(106.0)
2440(96.1)

Front View

1410(55.5) 1643(64.7)
1509(59.4) DOOR OPEN LENGTH 1380(54.3)
2060(81.1)
2292(90.2)
1020(40.2)
1050(41.3)
2810(110.6)
(A/B/C W/DI Gear Box, MA W/O Gear Box) 4222(166.2)
(A/MA W/BFD Gear Box, MB W/O Gear Box) 4422(174.1)
(B/C/MB/MC W/BFD Gear Box) 4582(180.4)
930(36.6)
940(37.0)

Side View

560(22.0)
1245(49.0)
1127(44.4)
463(18.2)
1880(74.0)

External Dimensions
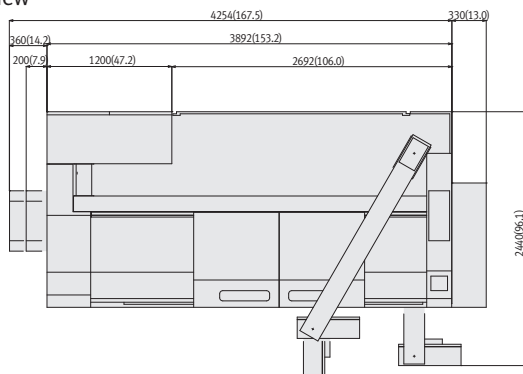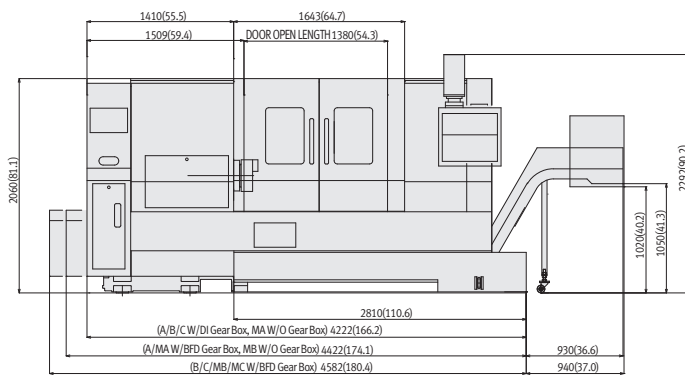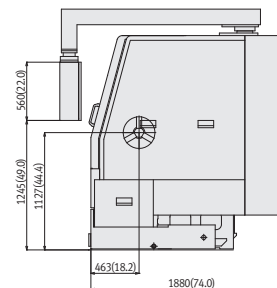
PUMA 400L / 400LM

Top View

Unit : mm (inch)

5372(211.5)
330(13.0)
360(14.2)
5012(197.3)
200(7.9)
1200(47.2)
3812(150.1)
2440(96.1)

Front View

Side View

1410(55.5)
2463(97.0)
1509(59.4)
DOOR OPEN LENGTH 2200(86.6)
2060(81.1)
2306(90.8)
1020(40.2)
1060(41.7)
1259(49.6)
1127(44.4)
560(22.0)
463(18.2)
1880(74.0)

3930(154.7)
(LA/LB/LC W/DHI Gear Box, LMA W/O Gear Box) 5342(210.3)
(LA/LMA W/BFD Gear Box, LMB W/O Gear Box) 5542(218.2)
(LB/LC/LMB/LMC W/BFD Gear Box) 5702(224.5)
930(36.6)
940(37.0)
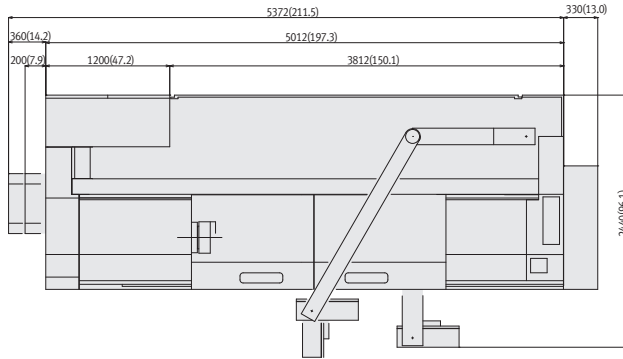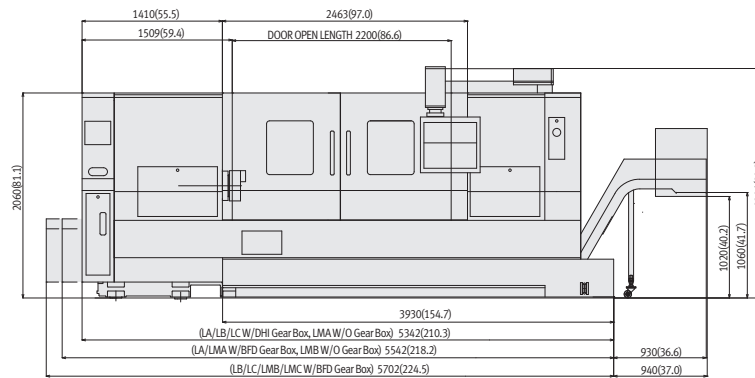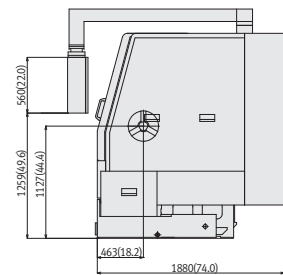
PUMA 400XL / 400XLM

Top View

6648(261.7)
330(13.0)
343(13.5)
6305(248.2)
1250(49.2)
5055(199.0)
654.5(25.8)
2200(86.6)

Front View

Side View

2250(90.2)
2205(86.8)
1020(40.2)
675(26.6)
620(24.4)
2439(96.0)
1163(45.8)
P400XLMC(BF)
5175(203.7)
6635(261.2)
6700(263.8)
6978(274.7)
949.5(37.4)
565(22.2)
2015.7(79.4)
2309.5(90.9)
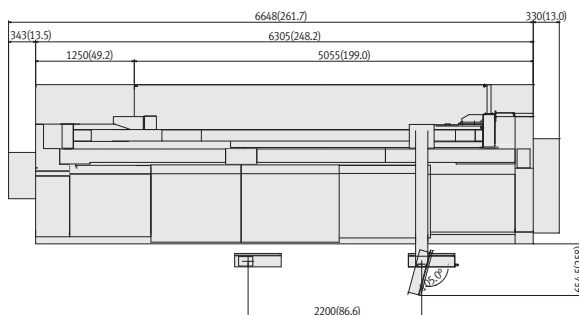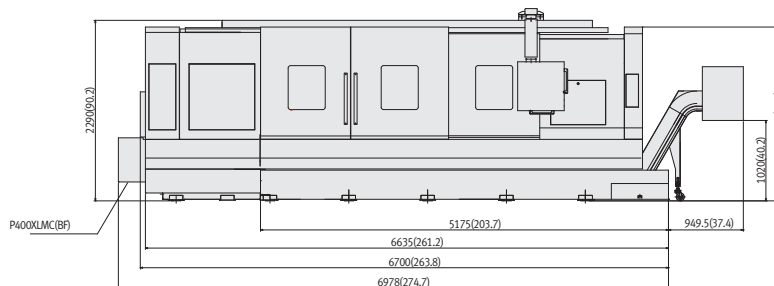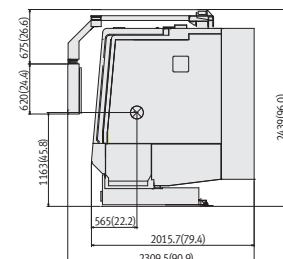
Machine Specifications

Features		Unit	PUMA 400A [LA]	PUMA 400B [LB]	PUMA 400C [LC]	PUMA 400MA [LMA]	PUMA 400MB [LMB]	PUMA 400MC [LMC]	PUMA 400XLA [XLB/XLC]	PUMA 400XLMA [XLMB/XLMC]
Capacity	Swing over bed	mm (inch)	770 (30.3)							
	Swing over saddle	mm (inch)	590 (23.2)							
	Recom. turning diameter	mm (inch)	305 (12.0)	380 (15.0)		305 (12.0)	380 (15.0)		305 [380] (12.0[15.0])	
	Max. turning diameter	mm (inch)	550 (21.7)			560 (22.0)			550 (21.7)	560 (22.0)
	Max. turning length	mm (inch)	1079 [2129] (42.5 [83.8])	1043 [2093] (41.1 [82.4])	1024 [2074] (40.3 [81.7])	1014 [2064] (39.9 [81.3])	978 [2028] (38.5 [79.8])	959 [2009] (37.8 [79.1])	3150 [3114 / 3095] (124.0 [122.6 / 121.9])	
	Bar working diameter	mm (inch)	90 (3.5)	117 (4.6)	165.5 (6.5)	90 (3.5)	117 (4.6)	165.5 (6.5)	90 [117 / 165.5] (3.5 [4.6 / 6.5])	
Carriage	Travel distance X-axis	mm (inch)	362 (14.3)			357 (14.1)			362 (14.3)	357 (14.1)
	Z-axis	mm (inch)	1105 [2155] (43.5 [84.8])						3150 (124.0)	
	Min. spindle Indexing angle (C-axis)	deg	-			360° {0.001°}			-	360° {0.001°}
Feedrate	Rapid traverse (X / Z)	m/min (ipm)	16 / 20 [16 / 18] (629.9 / 787.4 [629.9 / 708.7])						16 / 10 (629.9 / 393.7)	
Main Spindle	Chuck size	mm (inch)	305 (12.0)	380 (15.0)	530 (20.9)	305 (12.0)	380 (15.0)	530 (20.9)	305 [380 / 530] (12.0 [15.0 / 20.9])	
	Spindle speed	r/min	3000	2000	1500	3000	2000	1500	3000 [2000 / 1500]	
	Spindle nose	ASA	A2 - 8	A2 - 11	A1 - 15	A2 - 8	A2 - 11	A1 - 15	A2 - 8 [A2 - 11 / A1 - 15]	
	Spindle through hole	mm (inch)	102 (4.0)	132 (5.2)	181 (7.1)	102 (4.0)	132 (5.2)	181 (7.1)	102 [132 / 181] (4.0 [5.2 / 7.1])	
	Main spindle motor (Cont./30min)	kW (Hp)	18.5 / 22 (24.8 / 29.5)	22 / 26 (29.5 / 34.9)	30 / 37 (40.2 / 49.6)	22 / 30 (29.5 / 40.2)		30 / 37 (40.2 / 49.6)	18.5 / 22 [22 / 26, 30 / 37] (24.8 / 29.5 [29.5 / 34.9, 40.2 / 49.6])	22 / 30 [22 / 30, 30 / 37] (29.5 / 40.2 [29.5 / 40.2, 40.2 / 49.6])
Tool Post	No. of tool station	EA	12 {Base holder}	10 {Base holder}		12 {BMT 75P}			12 [10] {Base holder}	12 {BMT 75P}
	Boring bar diameter	mm (inch)	60 (2.4)							
	Indexing time (1st swivel)	s	0.25 {1Station Swivel}							
Tail Stock	Quill diameter	mm (inch)	120 (4.7)							
	Quill bore taper		MT#6							
Power Source	Electric power supply (Rated capacity)	kVA	35.5	43.0	53.1	48	58.1		35.5 [43.0/53.1]	48 [58.1]
Machine Size	Machine height	mm (inch)	2292 [2306]						2439	
	Machine size	mm (inch)	4582 x 2440 [5702 x 2440]						6978 x 2310	
	Machine weight	kg (lb)	9050 [10500] (19951.5 [23148.2])	9550 [11000] (21053.8 [24250.5])	10050 [11500] (22156.1 [25352.8])	9200 [10700] (20282.2 [23589.1])	9700 [11200] (21384.5 [24691.4])	10200 [11700] (22486.8 [25793.7])	11000 [11500 / 12000] (24250.5 [25352.8/26455.1])	11500 [12000 / 12500] (25352.8 [26455.1/27557.4])

Standard Feature

- Coolant supply equipment
- Foot switch
- Full enclosure chip and coolant shield
- Hand tool kit, including small hand tool for operations
- Hydraulic chuck & actuating cylinder
- Hydraulic power unit
- Leveling jack screw & plates
- Live center
- Lubrication equipment
- Soft jaws
- Standard tooling kit (tool holders& boring sleeves)
- Work light

Optional Feature

- Additional tool holders & sleeves
- Air blast for chuck
- Air gun
- Automatic door with safety device
- Automatic measuring system (in process touch probe)
- Automatic power off
- Automatic work loading & unloading equipment
- Bar feeder interface
- Chip bucket
- Chip conveyor
- Controller : Fanuc 31i-A
- Dual chucking pressure
- Hardened & ground jaws
- Hydraulic steady rest
- Manual steady rest
- Long boring bar (ø 100)
- Oil skimmer
- Pressure switch for chucking pressure check
- Programmable tail stock

NC Unit Specifications

Controls

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Controlled axes		X, Z, C (!)	X, Z, C (!)
- Simultaneously controlled axes	Std. 2 axes	3 axes(!)	3 axes(!)

Axis Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Backlash compensation	0~±9999 pulses	○	○
- Cs contouring control		○ (!)	○ (!)
- Follow-up / Chamfering on/off		○	○
- HRV2 control		○	○
- Increment system 1/10	0.0001 mm / 0.00001"	○	○
- Least input increment	0.001 mm / 0.0001"	○	○

Operation

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Stored stroke check 1	Overtravel control	○	○
- Stored stroke check 2, 3	Overtravel control	○	○

Interpolation

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- 1st. reference position return	Manual, G28	○	○
- 2nd. reference position return	G30	○	○
- Automatic operation (memory) / Buffer register	.	○	○
- Circular interpolation	G02	○	○
- Continuous thread cutting		○	○
- Dwell (per sec)	G04	○	○
- Handle incremental feed	X1, X10, X100	○	○
- Linear interpolation	G01	○	○
- Multiple threading / Thread cutting retract		○	○
- Polar coordinate interpolation		○ (!)	○ (!)
- Search function	Sequence NO. / Program NO.	○	
- Thread cutting / Synchronous cutting		○	○

Feed Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Feed per minute / Feed per revolution		○	○
- Feedrate override	0 - 200% (10% unit)	○	○
- Jog feed override	0 - 2000 mm/min	○	○
- Rapid traverse override	F0 / 25 / 100 %	○	○
- Tangential speed constant control		○	○

Axuiliary & Spindle Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Constantant surface speed control		○	○
- M-function	M3 digits	○	○
- Multi-spindle control		○ (!)	○ (!)
- Rigid tapping		○	○
- Multi-spindle control		○ (!)	○ (!)
- Spindle orientation		○	○
- Spindle serial output	S4 / S5 digits	○	○
- Spindle speed override	0~150%	○	○

Programming Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Absolute / Incremental programming	G01	○	○
- Canned cycle for drilling / Turning	G01	○	○
- Custom macro	G01	○	○
- Decimal point programming / pocket calculator type decimal point programming		○	○
- Direct drawing dimension programming		○	○
- eZ Guide i	Conversational programming	○	Opt.
- Maximum program dimension	±9 digits	○	○ (!)
- Multi repetitive canned cycle	G70~G76	○	○
- Multi repetitive canned cycle 2		○	○
- Optional block skip (without hardware)	Total 9 (Only NC function)	○	○
- Programmable data input	G10	○	○
- Sequence number		N8	N5
- Sub program call	Nested holds	10	4
- Tape format for FANUC series 10/11		–	○
- Work coordinate system	G52~G59	○	○

Tool Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Auto tool offset	.	○	○
- Direct input of tool offset value measured B		○	○
- Tool geometry / wear compensation	Geometry & wear data	○	○
- T-code function	T2+2 digits	○	○
- Tool life management		○	○
- Tool load monitoring system		Opt.	–
- Tool nose radius compensation		○	○
- Tool offset pairs		64pairs	64pairs
- Tool offset value counter input		○	○

Editing Op. Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Background editting		○	○
- Expanded part program editting	Copy, Move, Change of NC program	○	○
- No. of Registered programs		500ea	400ea
- Part program editing / Program protect		○	○
- Part program storage length*[1]		640m	1280m

Setting & Display

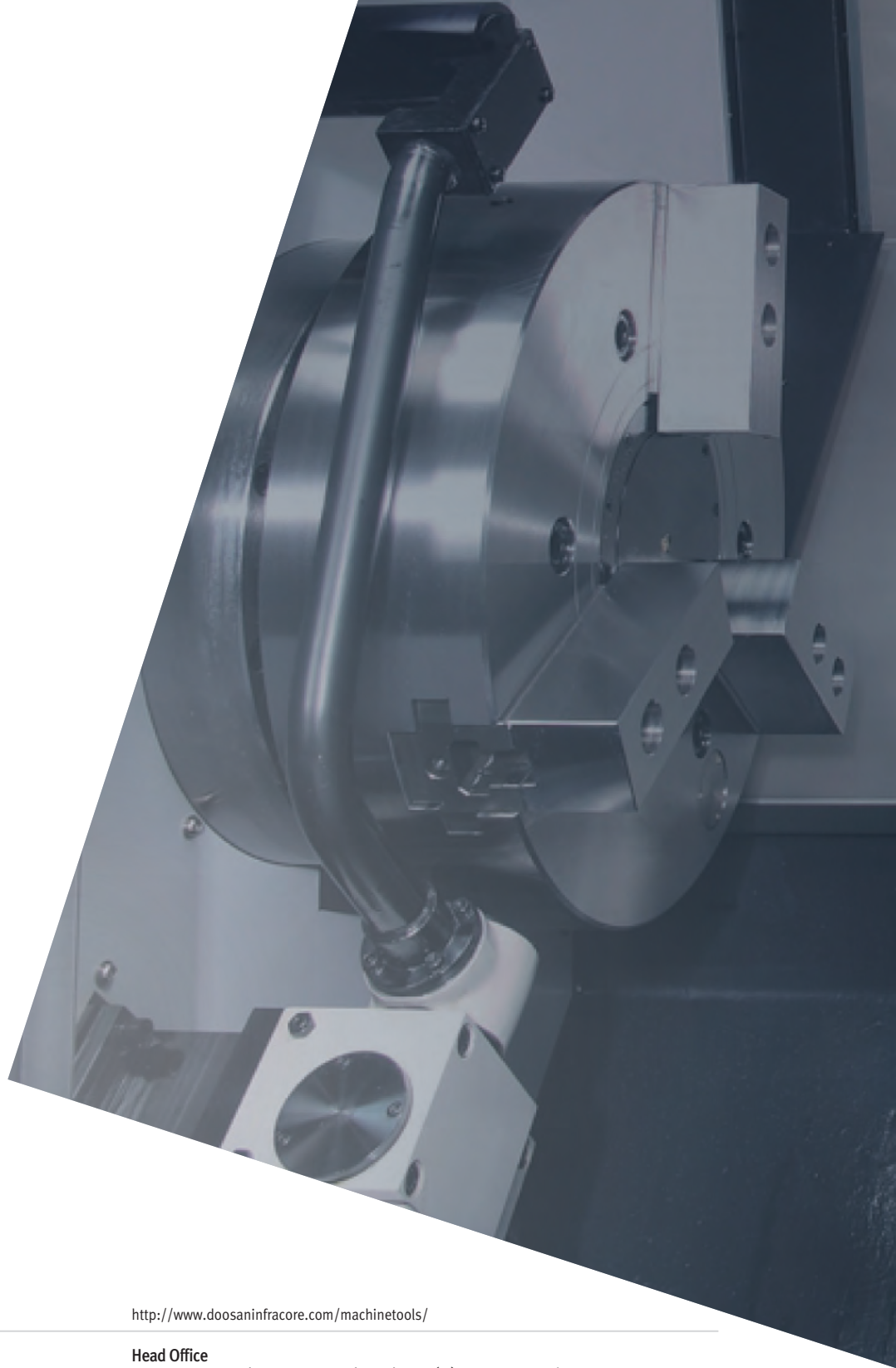| Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Display of spindle speed and T-code at all screen		○	○
- Help function	Alarm & Operation display	○	○
- Self diagnostic function		○	○
- Servo setting screen / Spindle setting screen		○ (!)	○

Data Input & Output

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- I/O interface	RS-232C	○	○
- Memory card input and output		○	○
- Reader puncher control		○	○
- Spindle speed override		○	○

Other Functions

Item	Spec.	Fanuc 32i-A	Doosan Fanuc i series
- Ethernet function	Embedded ethernet function	○	○
- MDI / DISPLAY unit	G01	10.4" color TFT LCD	10.4" color TFT LCD
- PMC system	G01	○	○

○ : Standard   OPT : Option   (!) : only M type

*1 : Standard Part program length is different on export condition. On the addition of optional functions, its length can be reduced.

Doosan Machine Tools

Optimal Solutions for the Future

EN 141024SU

- The specifications and information above-mentioned may be changed without prior notice.
- For more details, please contact Doosan.